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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/079,219	02/19/2002	Robert Hughes Jones	8036-1004	6866

7590 04/16/2003

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[REDACTED] EXAMINER

LOBO, IAN J

ART UNIT	PAPER NUMBER
3662	

DATE MAILED: 04/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/079,219	JONES, ROBERT HUGHES
	Examiner	Art Unit
	Ian J. Lobo	3662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 28 January 2003.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-6 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) 6 is/are allowed.

6) Claim(s) 1-5 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ .
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>6</u> .	6) <input type="checkbox"/> Other: _____ .

DETAILED ACTION

Specification

1. The substitute specification, filed January 28, 2003 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 2 is rejected under 35 U.S.C. 102(b) as being anticipated by the UK patent application to Halladay et al ('337).

The UK patent application to Halladay et al discloses a method of using a seismic detector including four seismic sensors (see Fig. 1) to detect and measure seismic activity. With respect to claim 2, see page 4, paragraph numbered 2, wherein Halladay et al teaches that although four sensors are utilized, failure of one would still make useful measurements .

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gragnolati et al ('872) or the UK patent application to Halladay et al ('337) when taken in view of Grice ('615)

The patent to Gragnolati et al discloses a method of using a seismic detector including four seismic sensors (col. 4, lines 23-27 and Fig. 4) to detect and measure seismic activity. Similarly, the UK patent application to Halladay et al discloses a method of using a seismic detector including four seismic sensors (see Fig. 1) to detect and measure seismic activity. It is noted that use of the Halladay et al and Gragnolati et al systems provides for three-dimensional indications of motion.

The difference between claim 1 and the Gragnolati et al patent or Halladay et al patent application is the claim specifies the step of combining the outputs of the sensors to check that their polarities are correct.

The patent to Grice teaches that checking for proper polarities of seismic sensors is important especially when the sensors or geophones are connected in an array. Each of the plurality of sensors is connected in parallel and their outputs are combined to check the polarities of the sensors.

Thus, in view of Grice, it would have been obvious to one of ordinary skill in the art to modify the methods of Halladay et al or Gragnolati et al by including the step of checking the polarities of the sensor outputs by combining said outputs. Claim 1 is so rejected.

6. Claims 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gragnolati et al ('872) or the UK patent application to Halladay et al ('337) when taken in view of McCormick ('018).

The patent to Gragnolati et al discloses a method of using a seismic detector including four seismic sensors (col. 4, lines 23-27 and Fig. 4) to detect and measure seismic activity. Similarly, the UK patent application to

Halladay et al discloses a method of using a seismic detector including four seismic sensors (see Fig. 1) to detect and measure seismic activity. It is noted that use of the Halladay et al and Gragnolati et al systems provides for three-dimensional indications of motion.

The difference between claim 4 and the Gragnolati et al patent or Halladay et al patent application is the claim requires testing the outputs for coherence.

McCormick teaches that in multi-sensor seismic systems it is a common practice to test for the worthiness of each of the sensors in the multi-sensor system and a specific test would be the relative sensitivities of the sensors or coherent outputs of the sensors. Thus, in view of McCormick, it would have been obvious to one of ordinary skill in the art to modify either Gragnolati et al or Halladay et al to include testing the coherency of each sensor in the array and/or testing the relative sensitivities of each sensor. It is an inherency that the skilled artisan would only use the working or “worthy” sensors in the three dimensional analysis.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gragnolati et al ('872) or the UK patent application to Halladay et al ('337) when taken in view of Barr ('980).

The patent to Gragnolati et al discloses a method of using a seismic detector including four seismic sensors (col. 4, lines 23-27 and Fig. 4) to detect and measure seismic activity. Similarly, the UK patent application to Halladay et al discloses a method of using a seismic detector including four seismic sensors (see Fig. 1) to detect and measure seismic activity. It is noted that use of the Halladay et al and Gragnolati et al systems provides for three-dimensional indications of motion.

The difference between claim 3 and the above Gragnolati et al or Halladay et al references is the claim specifies that the outputs of the four sensors are utilized to obtain an indication of motion in 3D using a least squares basis.

Fig. 5 of Barr teaches using a least squares basis to obtain an indication of motion using a motion detector. However, the motion detector of Barr is not specified. Halladay et al and Gragnolati et al teach improved motion detectors using four seismic sensors. Thus, in view of Barr, to have utilized the seismic detectors disclosed in Halladay et al or Gragnolati et al

to obtain an indication of motion using a least squares basis would have been obvious to one of ordinary skill in this art.

Claim Rejections - 35 USC § 112

8. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear whether the "gains" or "sensitivities" are one in the same as is apparently being claimed in the instant claim.

Allowable Subject Matter

9. Claim 6 is allowed.

10. Claim 5 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

Response to Arguments

11. Applicant's arguments with respect to claims 1-5 have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 3662

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian J. Lobo whose telephone number is (703) 306-4161. The examiner can normally be reached on Mon - Fri, 6:30 - 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on (703) 306-4171. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9326 for regular communications and (703) 872-9327 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.



IAN J. LOBO
PRIMARY EXAMINER